

REMARKS

The Office Action dated October 6, 2005, has been received and reviewed.

Claims 1-17 are currently pending and under consideration in the above-referenced application. Each of claims 1-17 stands rejected.

Reconsideration of the above-referenced application is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 1-17 stand rejected under 35 U.S.C. § 103(a).

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Batchelder

Claims 1-4, 6, 9, and 11-17 stand rejected under 35 U.S.C. § 103(a) for reciting subject matter which is assertedly unpatentable over that taught in U.S. Patent 6,019,165 to Batchelder (hereinafter "Batchelder").

Batchelder teaches a heat exchange apparatus with a heat source (e.g., a semiconductor device), a thermal conductor and electrical insulator 14 that conducts heat from the heat source, and an active spreader plate 20 that receives heat from the thermal conductor and electrical insulator 14. Col. 4, lines 63-67; FIG. 2. Heat is transferred into the active spreader plate 20 and optionally conducted into a fin array 52 that further transfers the heat to a heat transfer fluid sealed in flow channels 50 located inside the active spreader plate 20. Col. 5, lines 1-7; FIG. 2.

An impeller 54, which rotates under influence of a magnet 56, causes the heat transfer fluid to move through the flow channels 50. Col. 5, lines 21-26; FIG. 2; *see also* FIGS. 3-5, 7-8.

As the heat transfer element of Batchelder includes an active spreader plate 20, a separate heat transfer fluid within flow channels 50 thereof, and a separate, rotatable impeller 54 for moving the heat transfer fluid through the flow channels 50, it is clear that the heat transfer element of Batchelder could not be considered a unitary structure. Furthermore, Batchelder teaches, at col. 4, lines 9-19, that the active spreader plate 20 includes “a rigid assembly of at least two patterned objects that hermetically enclose one or more interior channels or passageways.” *See, especially*, col. 4, lines 9-11.

In view of the limited teachings of Batchelder, it is respectfully submitted that there are several reasons that a *prima facie* case of obviousness has not been established against any of claims 1-4, 6, 9, or 11-17.

First, it is respectfully submitted that Batchelder does not teach or suggest a heat transfer element that is fabricated as a unitary structure, as is required by independent claim 1. Even taking an extremely liberal view of the apparatus disclosed in Batchelder (which includes a number of separate, independently movable pieces), Batchelder requires that two or more pieces be used to form just the flow-channel 50-containing portion of the active spreader plate. Col. 4, lines 9-19.

Second, it is respectfully submitted that, without the benefit of hindsight that the disclosure and claims of the above-referenced application provide to the Examiner, one of ordinary skill in the art wouldn’t have been motivated to modify teachings from Batchelder in the manner that has been asserted. Specifically, one of ordinary skill wouldn’t have been motivated to develop a heat transfer element that is fabricated as a unitary structure in place of the multi-piece apparatus of Batchelder.

In fact, Batchelder, by requiring that the portion of the active spreader plate 20 through which flow channels 50 extend be formed from two or more pieces (col. 4, lines 9-19), Batchelder teaches away from a heat transfer element fabricated as a unitary structure.

For these reasons, it is respectfully submitted that, under 35 U.S.C. § 103(a), the subject matter recited in independent claim 1 is allowable over the subject matter taught in Batchelder.

Each of claims 2-4, 6, 9, and 11-17 is allowable, among other reasons, for depending directly or indirectly from independent claim 1, among other reasons.

Claim 2 is further allowable since Batchelder neither teaches nor suggests that at least a portion of a heat transfer element that has been fabricated as a unitary structure may include a plurality of adjacent, mutually adhered regions.

Claim 6 is additionally allowable because Batchelder includes no teaching or suggestion of a heat transfer element that is fabricated as a unitary structure including particles that are secured to one another.

Claim 16, which depends from claim 2, is also allowable since Batchelder does not teach or suggest that at least a portion of a heat transfer element that has been fabricated as a unitary structure may include a plurality of superimposed, contiguous, mutually adhered layers.

Claim 9, which depends from claim 16, is further allowable because Batchelder lacks any teaching or suggestion of at least a portion of a heat transfer element that has been fabricated as a unitary structure from a plurality of sheets of thermally conductive material.

Claim 11, which depends from claim 9, is also allowable since Batchelder neither teaches nor suggests that at least a portion of a heat transfer element that has been fabricated as a unitary structure may include a plurality of sheets that are thermally bonded together.

Claim 12 is additionally allowable because Batchelder does not teach or suggest a heat transfer element with a nonlinear passageway that is configured to permit airflow therethrough. Instead, the teachings of Batchelder are limited to sealing a “heat transfer fluid” within flow channels 50. Further, the fan housing 30 that has been referred to by the Examiner, which does not include or form a nonlinear path through a heat transfer element, is separate and remote from the flow channels 50. *See FIGS. 1 and 2; col. 9, lines 22-48.*

Claim 14 is additionally allowable since Batchelder lacks any express or inherent description of a heat dissipation element (*e.g.*, fins 28) that includes a plurality of adjacent, mutually adhered regions comprising thermally conductive material. *See col. 7, lines 4-22.*

Claim 17, which depends from claim 14, is further allowable because Batchelder neither expressly nor inherently describes a heat dissipation element that includes a plurality of superimposed, contiguous, mutually adhered layers. *See col. 7, lines 4-22.*

Batchelder in View of Tseng

Claim 5 stands rejected under 35 U.S.C. § 103(a) for reciting subject matter that is assertedly unpatentable over that the subject matter taught in Batchelder, in view of teachings from U.S. Patent 6,175,497 to Tseng (hereinafter “Tseng”).

Claim 5 is allowable, among other reasons, for depending from claim 1, which is allowable.

Batchelder in View of Rostoker

Claims 7 and 8 have been rejected under 35 U.S.C. § 103(a) for being drawn to subject matter that is allegedly assertedly unpatentable over teachings from Batchelder, in view of the teachings of U.S. Patent 5,814,536 to Rostoker et al. (hereinafter “Rostoker”).

Claims 7 and 8 are allowable, among other reasons, for depending from claim 1, which is allowable.

Batchelder in View of Fuller

Claim 10 is rejected under 35 U.S.C. § 103(a) for reciting subject matter which is purportedly unpatentable over that taught in Batchelder in view of teachings from U.S. Patent 5,529,379 to Fuller et al. (hereinafter “Fuller”).

Claim 10 is allowable, among other reasons, for depending from claim 1, which is allowable.

It is respectfully requested that the 35 U.S.C. § 103(a) rejections of claims 1-17 be withdrawn and that each of these claims be allowed.

CONCLUSION

It is respectfully submitted that each of claims 1-17 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of

the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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